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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/936,117	02/01/2002	Thomas Hofler	P/2107-186	9525

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EXAMINER	
TSANG FOSTER, SUSY N	

ART UNIT	PAPER NUMBER
1745	

DATE MAILED: 06/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/936,117	HOFLER ET AL.	
	Examiner	Art Unit	
	Susy N. Tsang-Foster	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-10 and 14-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-10 and 14-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/21/2005 has been entered.

Response to Amendment

2. This Office Action is responsive to the amendment filed on 1/21/2005. Claims 1, 3, 4, 8, 9, 14, 21-23, 27-30, 33, 35, and 36 have been amended. Claims 2, and 11-13 have been cancelled. Claims 1, 3-10, and 14-42 are pending and are rejected for reasons given below.

Claim Objections

3. Claims 30 and 37 are objected to because of the following informalities:

In claim 30, the phrase "a braid of electrically insulating or ion-conducting fibers are applied as a spacer" should be "a braid of electrically insulating or ion-conducting fibers is applied as a spacer" because it appears that the braid is the subject of the verb.

In claim 37, "tubular composition" should be "tubular composite".

Appropriate correction is required.

4. Claim 17 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

In claim 17, the limitation "in which the ion-conducting material is designed as a membrane" does not further limit claim 1 which recites "wherein the layer forms an ion-selective membrane".

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1, 3-10, and 14-42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1 and 36, the limitation "bundles of carbon fibers further comprising metal wires or metal wire bundles" is indefinite because it is unclear how bundles of carbon fibers would also include metal wires or metal wire bundles. Instead, the specification discloses bundles made of carbon fibers and one of metal wires and metal wire bundles.

Claim 6 recites the limitation "the at least one catalyst layer (7,9)" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claim 22 recites the limitation "the braid (11,17) which lies toward the outer surface of the tubular composite (1)" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Claims depending from claims rejected under 35 USC 112, second paragraph are also rejected for the same.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 4-7, 14, 16, 17, 18, 20-28, 34 and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Lawson et al. (US Patent No. 4,420,544) and as evidenced by Datasheet for Tubular Braids ([online]. Omegaflex, Inc.-Manufacturers of Flexible Metal Hose and Braid Products. [retrieved on 2004-05-09]. Retrieved from the Internet: <URL: http://www.omegaflex.com/braid>).

Lawson et al. disclose a tubular fuel cell (tubular composite) comprising an open-ended ion-exchange hollow fibers (the layer of ion-selective membrane such as NAFION which is a perfluorosulfonic acid polymer) having a layer of catalyst deposited on the inner surface thereof and a first current collector in contact with the catalyst layer (see abstract; col. 4, lines 40-68, col. 6, lines 42-55 and Figure 1).

The inside diameter of the tubular composite is generally from 0.5 mm to 5.0 mm and fibers having diameters as small as 0.2 mm are available (col. 4, lines 40-45).

The first current collector is formed of a non-reactive metallic wire material and may be a braided wire mesh sleeve that can be easily slipped into the interior surface of the fine

filamentary hollow fiber tube and the sleeve will expand into intimate contact with the catalytic electrode surface (col. 4, lines 1-19). Lead wire 28 connects the first current collector to terminal 30 (col. 3, lines 60-67). As seen in Figure 1, the axis of the metal wire 28 is oriented parallel to a longitudinal direction of the tubular fuel cell and in contact with the current collector. Though only a single tubular composite is shown in the figure of the reference, multiple tubular composites can be attached to a common gas header by potting the ends of the tube into adhesive and inserting them into a funnel shaped member and these multiple tubular composites can be inserted into a single body of electrolyte and may be connected in series or in parallel (col. 4, lines 11-39).

Although the Lawson et al. reference does not explicitly disclose that the braided wire mesh sleeve comprises a braid comprising bundles of metallic wires, the process of braiding metallic wire to form hollow metallic sleeves inherently involves braiding more than one metal wire at a time such that more than one metal wire reads on bundle of metallic wires. As evidenced by Datasheet for Tubular Braids ([online]. Omegaflex, Inc.-Manufacturers of Flexible Metal Hose and Braid Products. [retrieved on 2004-05-09]. Retrieved from the Internet: <URL: http://www.omegaflex.com/braid>), the data sheet states that a tubular braid is manufactured by grouping single wires and then braiding them into an intricate pattern.

Conclusion

Any inquiry concerning this communication or earlier communications should be directed to examiner Susy Tsang-Foster whose telephone number is (571) 272-1293. The examiner can normally be reached on Monday through Friday from 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at (571) 272-1292.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

st/ Susy Tsang-Foster

SUSY TSANG-FOSTER
PRIMARY EXAMINER